

## CLAIMS

What is claimed is:

1. A method of measuring a mass flow of a cryogenic liquid dispensed through a primary meter and a compensating meter comprising the steps of:

- 5                   a)     measuring a first characteristic of the cryogenic liquid with the primary meter;
- b)     measuring a second characteristic of the cryogenic liquid with the compensating meter;
- 10                  c)     calculating a density of the dispensed cryogenic liquid using the first characteristic from step a) and the second characteristic from step b); and
- d)     calculating the mass flow of dispensed cryogenic liquid using the density from step c).

2. The method of claim 1 wherein the first characteristic of step a) is a change in  
15   pressure across the primary meter and the second characteristic of step b) is a frequency of cryogenic liquid flow through the compensating meter.

3. The method of claim 1 further comprising the steps of:

- e)     providing a sump containing cryogenic liquid to be dispensed;
- 20                  f)     measuring the temperature of the cryogenic liquid in the sump;
- g)     using the temperature from step e) to obtain the density of a pure cryogenic liquid; and

- h) comparing the densities of steps c) and g) to determine a purity of the cryogenic liquid.